



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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October 16, 2003

Paula Doughty  
Kennecott Utah Copper Corporation  
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Magna, Utah 84044-6001

Subject: Tailings Impoundment Seed Mix, Kennecott Utah Copper, Bingham Canyon Mine, M/035/002, Salt Lake County, Utah

Dear Ms. Doughty:

Thank you for your fax showing the reclamation seed mixture being used on the South Tailings Pond. The Division has some suggestions about how this seed mix is applied and what species are used.

We assume the postmining land use will not be fully implemented for several years. If this is correct, it would probably be best to establish perennial species, particularly grasses, on the tailings impoundment. If an industrial or similar postmining use is to be realized within one or two years, then a cover of annual grain would be appropriate.

Grains, such as barley and cereal rye, that you have included in the mix, have very good seedling vigor and provide excellent cover very quickly. In so doing, however, they use a lot of soil moisture which is often the limiting factor for vegetation establishment. Therefore, seeding the grains at the same time as the less competitive rangeland species is not likely to result in establishment of perennial cover except when there is an exceptional amount of precipitation.

We understand your need to provide quick ground cover to control dust from the tailings pond but do not know exactly what those requirements are and how much delay is acceptable. Some of the species in the mix, such as tall wheatgrass, intermediate wheatgrass, and crested wheatgrass, can be expected to establish and grow quickly, but they will not match the fast growth of barley and rye. Also, where fall grains germinate in the fall and provide some cover all through the winter, the range grasses will not germinate until spring. If spring germination and slower establishment can be tolerated, we suggest that you eliminate barley and rye from the mix.

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If you must have the quick establishment and winter vegetative cover provided by a grain, we suggest that you try a product called Regreen. Regreen is a sterile hybrid with many of the characteristics of grain, but the resulting seed is not viable (there may be a few viable seeds) and will not compete with other species planted later. In this case, we anticipate you would plant Regreen in the fall and allow it to grow until it dies the next summer. In the fall of the next year, you could use a no-till drill to plant into the Regreen stubble. In this way, you would still have cover protecting the soil until the more permanent species became established.

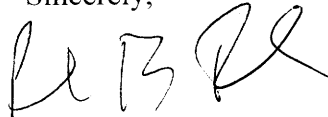
Most species in the seed mix are adapted to the site, but sand dropseed does not normally tolerate a high water table. Inland saltgrass should grow very well in this area, but we suggest that you experiment with establishing this species from plugs. The alkali sacaton and the two alkaligrasses have small seeds and should probably not be drilled, or, if they are drilled, they should be planted very shallowly. One option on some drills would be to include these species in a separate seed box and to pull the seeding tube so the seeds are placed on the surface.

Depending on results from past seeding operations, you may want to modify the seed mix in other ways. During our visit on October 14, 2003, we only stopped once and only looked closely at an area where rye and barley were dominant, but I saw other areas where it appeared perennial vegetation had been more successful. It might be informative to evaluate those areas more closely.

As I expressed during our meeting, I feel that increased cooperation and communication will result in better reclamation and a more positive relationship between Kennecott and the Division. I would very much like to meet with Vicky and/or any other appropriate person and discuss revegetation on the tailings pond and other areas. Although my schedule is very busy for the next few weeks, I will contact her to see if we can set up a field visit.

Thank you again for your cooperation. Please feel free to call me at 801-538-5261 or e mail me at paulbaker@utah.gov if you have any questions about this letter.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. B. Baker', with a stylized flourish at the end.

Paul B. Baker, Senior Reclamation Biologist  
Division of Oil, Gas and Mining